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Optimizing self-renewal signaling kinetics to stabilize ex vivo hematopoietic stem cell expansion

**Grant Award Details**

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Optimizing self-renewal signaling kinetics to stabilize ex vivo hematopoietic stem cell expansion

**Grant Type:** Inception - Discovery Stage Research Projects

**Grant Number:** DISC1-10555

**Investigator:**

**Name:** Hiromitsu Nakauchi

**Institution:** Stanford University

**Type:** PI

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**Disease Focus:** Blood Disorders

**Award Value:** \$235,836

**Status:** Pre-Active

**Grant Application Details**

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**Application Title:** Optimizing self-renewal signaling kinetics to stabilize ex vivo hematopoietic stem cell expansion

**Public Abstract:** **Research Objective**

We aim to develop conditions for stable expansion of blood stem cells outside of the body

**Impact**

Blood stem cells are a rare but necessary cell type for curative bone marrow transplantation and related gene therapies. Stable blood stem cell expansion will increase therapy availability and success

**Major Proposed Activities**

- Validate a fully defined all-recombinant protein culture system for long-term HSC expansion
- Develop pharmacological strategies to provide robust ex vivo human HSC maintenance and expansion

**Statement of Benefit to California:** Blood stem cell availability is a major bottleneck in bone marrow transplantation, a curative therapy for numerous blood diseases. Blood stem cells currently cannot be stably maintained outside the body. Stable culture conditions would therefore increase blood stem cell availability, and improve accessibility to clinical bone marrow transplantation and related gene therapies. This research will ultimately improve bone marrow transplantation and related gene therapies for patients in California.

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